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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* HARRY TIOTANTRA, SZECHÉ TAN, and WEILOON NG

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Appeal 2009-005854  
Application 10/826,021  
Technology Center 2100

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Decided: January 8, 2010

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Before JAMES D. THOMAS, CAROLYN D. THOMAS, and  
STEPHEN C. SIU, *Administrative Patent Judges*.

SIU, *Administrative Patent Judge*.

DECISION ON APPEAL  
STATEMENT OF THE CASE

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-27. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

### *Invention*

The invention relates to data streaming systems (Spec. 1, l. 5). A data streaming system comprises a data storage device that provides an intermittent data stream to a buffer circuit, which provides a buffer data stream (Spec. 2, ll. 2-7). The buffer circuit generates a time-to-exhaust estimate (Spec. 2, l. 9). The data storage device uses output from an environment sensor to generate a variable time-to-fill estimate (Spec. 2, ll. 3-6). A comparator uses the time-to-exhaust and time-to-fill estimates to control energization of the data storage device (Spec. 2, ll. 10-13).

Independent claim 1 is illustrative:

1. A data streaming system, comprising:
  - a data storage device providing an intermittent read data stream; the data storage device also including an environment sensor and generating a variable time-to-fill estimate as a function of a sensor output;
  - a data streaming buffer circuit receiving the intermittent read data stream, providing a buffer data stream, and generating a time-to-exhaust estimate; and
  - a comparator receiving the time-to-fill and time-to-exhaust estimates and generating a comparator output that couples to the data storage device to control energization of the data storage device.

### *References*

The Examiner relies upon the following references as evidence in support of the rejection:

Millikan

US 6,928,039 B2

Aug. 9, 2005

Hodge

US 2004/0252397 A1

Dec. 16, 2004

*Rejections*

Claims 1-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hodge and Millikan.

ISSUE

Appellants argue that “[e]ach of the claims includes an element (a time-to-fill estimate) that is not taught or suggested in either Millikan or Hodge” (App. Br. 6). They argue that Millikan “does not teach or suggest comparing [a] ‘cached audio playback time’ to a time-to-fill estimate” (App. Br. 8). Appellants further submit that “placing a CD loader in a reduced power state is not the same thing as controlling energization of a data storage device” (Reply Br. 3).

*Issue:* Did Appellants demonstrate that the Examiner erred in finding that the combination of the Millikan and Hodge references teaches or suggests a comparator that controls energization of a data storage device based on time-to-exhaust and variable time-to-fill estimates?

FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

1. Appellants admit that “Millikan’s ‘cached audio playback time’ is similar to the claimed ‘time-to-exhaust’ estimate as presently claimed” (App. Br. 8).

2. Millikan teaches that

CD player 20 may be placed in a reduced power state if the cached audio playback time is greater than the CD player restart time. The CD player restart time is the collective time required to fully repower the CD player, determine the target sector to be retrieved from the disc, perform a seek function to position the laser to retrieve the sector, fill memory 26 with compressed audio, and retrieve and process the first segment of compressed audio data for playback through speaker system 34.

(Col. 4, ll. 6-14).

3. Millikan teaches that

[a]t steps 58 and 60, CD server 29 compares the cached audio playback time to the CD restart time. If the cached audio playback time is longer than the CD restart time [and] [i]f the CD player is not in a reduced power state, the CD player enters a reduced power state at step 64. . . . If CD server 29 determines at step 60 that the cached audio playback time is the same as or shorter than the CD restart time [and] [i]f CD player 20 is in a reduced power state, CD player 20 is restarted at step 70 to an active power state.

(Col. 4, l. 65 to col. 5, l. 11; fig. 3).

4. Millikan teaches that

[t]he reduced power state of the CD player is characterized by a stop or pause state in which the mechanical elements of the CD player do not draw power or draw significantly less power as compared to a fully powered state.

(Col. 2, ll. 9-13).

5. Hodge teaches that “once the media data for the particular media item has been loaded into the cache 506, the file system 504 can be inactivated . . . to save power consumption for the media player 500” (¶ [0049]).
6. Hodge teaches that  
[t]o refresh the cache 506 with a next remaining portion, the processor 502 needs to access the file system 504 (disk drive) to retrieve the next remaining portion and then cause such next remaining portion to be stored in the cache 506. The refresh process occurs periodically and must be promptly achieved in order to not introduce “dead air” or “quiet periods” when the media player 500 is playing the media item.  
(¶ [0053]).
7. Hodge teaches that an  
accelerometer 524 can provide an indication of acceleration induced on the media player 500. . . . [T]he refresh process can be . . . slow during the presence of significant acceleration. . . . [P]rocessor 502 [can] take preemptive actions to process refresh operations more frequently . . . .  
(¶ [0054]).

## PRINCIPLES OF LAW

### *Obviousness*

The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, and

(3) the level of skill in the art. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

“A claim can be obvious even where all of the claimed features are not found in specific prior art references, where ‘there is a showing of a suggestion or motivation to modify the teachings of [the prior art] to the claimed invention.’” *Ormco Corp. v. Align Technology Inc.*, 463 F.3d 1299, 1307 (Fed. Cir. 2006) (alteration in original) (citation omitted). One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

#### ANALYSIS

Based on Appellants’ arguments, we will decide the appeal on the basis of claim 1 alone. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Appellants’ primary argument is that neither Millikan nor Hodge teaches a time-to-fill estimate (App. Br. 6). Appellants submit that the “‘CD player reset time’ [of Millikan] suggests a fixed time, but the ‘time-to-fill estimate’ of Claim 1 is taught by Appellant to be a variable time” (Reply Br. 3). But, Appellants cannot prove nonobviousness by attacking Millikan individually. The time-to-fill estimate is taught or suggested by the combination of Millikan and Hodge. *See Merck*, 800 F.2d at 1097.

Millikan teaches a CD player restart time that includes a value for the time-to-fill memory with data (FF 2). This process of filling memory corresponds to Hodge’s teaching of refreshing (filling) a cache (memory)

with data (FF 6). Hodge teaches that the refresh process can be slow when there is significant acceleration (FF 7). Hodge further teaches that a processor can process refresh operations more frequently in response to significant acceleration (*id.*). This increased frequency of refresh operations can be in response to indications of acceleration from an accelerometer (*id.*).

An artisan of ordinary skill would have found it obvious to use the acceleration indication of Hodge in determining the time-to-fill memory value of Millikan. These combined teachings produce a variable time-to-fill estimate. An artisan of ordinary skill would have been motivated to combine these teachings by the desire to determine how frequently to process refresh operations. Thus, even if the CD player restart value of Millikan is constant, the combination of Hodge and Millikan teaches or suggests a variable time-to-fill estimate.

Millikan teaches a CD server that compares a cached audio playback time with a CD player restart time (FF 2, 3). Appellants admit that the cached audio playback time of Millikan is similar (i.e., teaches or suggests) a time-to-exhaust estimate (FF 1). Millikan's comparison uses the CD player restart time. The CD player restart time, when combined with Hodge's accelerometer, teaches or suggests a variable time-to-fill estimate. Thus, the combination of Hodge and Millikan teaches or suggest a comparator that uses time-to-exhaust and variable time-to-fill estimates.

Both Hodge and Millikan teach controlling energization of a data storage device. Hodge uses the term "file system" to mean "disk drive" (FF 6). A file system (disk drive) can be inactivated once media data has



been loaded into a cache (FF 5). Millikan teaches placing a CD player into a reduced power state based on the cached audio playback and CD player restart times (FF 2, 3). Millikan also teaches restarting (powering up) the CD player based on the same comparison (FF 3). Powering down the CD player means putting the mechanical elements of the CD player into a state where they do not draw power or draw significantly less power than when fully powered (FF 4).

Appellants further assert that the combination of Hodge and Milliken fails to teach or suggest “a data streaming buffer circuit that generates a time-to-exhaust estimate” (Reply Br. 3). This argument is not only untimely; it is moot in light of Appellants’ previous admission (FF 1).

Therefore, the combination of Hodge and Millikan teaches or suggests a comparator (CD server) that controls energization (activates or inactivates) of a data storage device (disk drive or CD player) based on time-to-exhaust (cached audio playback time) and variable time-to-fill (modified CD player restart time) estimates.

For at least these reasons, we find that Appellants have not sustained the requisite burden on appeal in providing arguments or evidence persuasive of error in the Examiner’s 35 U.S.C. § 103(a) rejections of claims 1-27 with respect to this issue.

### CONCLUSIONS OF LAW

Based on the findings of facts and analysis above, we conclude that Appellants have not demonstrated that the Examiner erred in finding that the

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combination of the Millikan and Hodge references teaches or suggests a comparator that controls energization of a data storage device based on time-to-exhaust and variable time-to-fill estimates.

#### DECISION

We affirm the Examiner's decision rejecting claims 1-27 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

msc

Westman, Champlin & Kelly  
Suite 1400  
900 Second Avenue South  
Minneapolis, MN 55402-3319